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Heavy quarkonia production in p+p collisions at $\sqrt{s}$=200 GeV measured by PHENIX detector at RHIC CESAR L. DA SILVA, Iowa State University, PHENIX COLLABORATION — Heavy quarkonia (J/ψ, ψ', χ_c, Υ, etc) has long been considered a sensitive probe of the confined and deconfined matter formed in heavy ion collisions due to its early formation, small size, strong binding and weak coupling relative to light mesons. The large mass of quarkonia compared to the QCD scale suggests the formation can be described in pQCD terms. However, the bound state formation can include non-perturbative contributions that are taken into account by different kinds of factorizations in the cross section calculation. Experimental observation of quarkonia yields, relative production of excited states and polarization in p+p collisions are crucial tools to constrain the production mechanism models and are a reference when evaluating the nuclear modification factors in heavy ion collisions. The PHENIX collaboration at RHIC collected data in p+p collisions at $\sqrt{s}$=200 GeV with a rapidity coverage of $|\eta| < 0.35$ and $1.2 < |\eta| < 2.4$. This data allowed the observation of different quarkonia states by their di-lepton decay channels. We will report J/ψ, ψ', χ_c, and Υ yields as well as J/ψ polarization (spin alignment). The implications of these measurements towards the understanding of quarkonia formation, feed-down decay rates and comparison with results from other experimental facilities will be discussed.

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